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| EXAMINER | |
|---|---|
| PENDLETON, DIONNE | |
| **ART UNIT** | **PAPER NUMBER** |
| 2627 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/711,836 | SUN ET AL. | |
| | Examiner | Art Unit | |
| | Dionne H. Pendleton | 2627 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *08 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date [redacted]
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: ***label "104" is missing from Figure 1.*** Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

***2.*** The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims 6 and 15 recite "non-OPC area". The Specification lacks proper antecedent basis for this terminology.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 6 and 15** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Specifically, paragraph 24 of the Applicant's disclosure teaches that the OPC process is performed in an OPC section of the disc but also teaches that the OPC process can be performed in any section of the optical disc. The Applicant's specification, however, fails to specifically identify the section of the optical disc, considered by the Applicant to be a "non-OPC area", as recited in the claims. Therefore, the recited "non-OPC area" in claims 6 and 15, is not enabled. There is no explanation of the particular location of the "non-OPC area" on an optical disc. Hence, one of ordinary skill in the art would require undue experimentation to make or use the invention.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 6 and 15** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The applicant's claim recites "performing the OPC using a non-OPC area..". However, this recitation fails to distinctly claim the invention since any area in which the OPC process is performed, would be fairly deemed an OPC area, instead of a "non-OPC area".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-5, 7, 10-14 and 16** are rejected under 35 U.S.C. 102(b) as being anticipated by **CALL (US 5,640,381).**

**Regarding claim 1,**

Call teaches the calibration of an automatic light emitting device , thereby inherently teaching a method of automatic light emitting device calibration ***(column 4,***

controlling power of the light emitting device by changing values of a drive signal to the light emitting device ***(via "21" in Figure 2);***

detecting light emitted by the light emitting device and generating a monitor signal having a value corresponding to the light emitted by the light emitting device utilizing the photo monitor ***(column 6, lines 46-52);***

and determining a preliminary power relationship relating values of the drive signal to powers of the light emitting device according to received monitor signal values for a plurality of drive signal values and a predetermined conversion rule for converting the received monitor signal values to corresponding powers of the light emitting device ***(column 6, lines 46-52 disclose that the monitor signal (see input to "63" in figure 4) is indicative of the laser beam intensity, thus corresponding to the recited "conversion rule"; column 11, lines 35-40 discloses that a plurality of monitor signal values are captured, resulting from a plurality of laser power levels, i.e., drive signal values).***

**Regarding claim 2,**

Call teaches the method of claim 1, wherein determining the preliminary power relationship relating the values of the drive signal to the powers of the light emitting device comprises the following steps:

determining an offset value being a maximum value of the drive signal where the light emitting device does not emit light according to the received monitor signal values ***(step "218" in Figure 9);***

and converting the received monitor signal values corresponding to drive signal values being higher than the offset value to power values according to the predetermined conversion rule to thereby generate the preliminary power relationship ***(steps "224"-"226" in Figure 9 wherein a plurality of laser generated emissions are analyzed (226) for the purpose of identifying the optimal power level).***

**Regarding claim 3,**

Call teaches the method of claim 2, wherein determining the preliminary power relationship relating the values of the drive signal to the powers of the light emitting device further comprises the following steps:

controlling the power of the light emitting device by utilizing a first drive signal value and a second drive signal value (***column 11, lines 35-37)***;

extrapolating monitor signal values of a line formed between a first received value of the monitor signal corresponding to the first drive signal value, and a second received value of the monitor signal corresponding to the second drive signal value ***(step "218" in figure 9)***;

determining the offset value of the drive signal to be a crossing value of the drive signal corresponding to where the extrapolated monitor signal values of the line cross a predetermined value of the monitor signal when the light emitting device is not emitting any light ***(also in step "218" in figure ; and see column 11, lines 37-46);***

and converting the extrapolated monitor signal values of the line corresponding to drive signal values being higher than the offset value to power values according to the predetermined conversion rule to thereby generate the preliminary power relationship ***(steps "219" through "227" in figure 9).***

**Regarding claim 4,**

Call teaches the method of claim 1, further comprising generating a final power relationship by performing a power relationship correction operation on an optical medium of the optical device; the power relationship correction operation comprising the following steps:

writing test data to the optical medium of the optical device using a particular drive signal value for a predetermined power value according to the preliminary power relationship ***("step "230" in figure 10);***

reading a read signal corresponding to the test data from the optical medium ***(step "231" in figure 10);***

and analyzing the read signal to determine if the test data was written to the optical medium at the particular power and correspondingly adjusting the preliminary power relationship such that the test data is written to the optical medium at the predetermined power to thereby generate the final power relationship ***(steps "232" through "234" in figure 10).***

**Regarding claim 5,**

Call teaches the method of claim 4, wherein the power relationship correction operation involves performing an optimum power control (OPC) on the optical medium of the optical device.

**Regarding claim 7,**

Call teaches the method of auto-calibration recited in claim 4, further comprising a non-volatile memory ***("83" and "84" in figure 4)*** for storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used by the microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device ***(column 7, lines 2-4).***

**Regarding claim 10,**

Call teaches an auto-calibrating ***(column 4, lines 23-26)*** optical device comprising:

a light emitting device ***("25" in figure 2)*** to be calibrated;

a photo monitor ***("37" in figure 2),*** for detecting light emitted by the light emitting device and generating a monitor signal having a value corresponding to the light emitted by the light emitting device;

and a microprocessor ***("11a" in figure 1)*** coupled to the light emitting device and the photo monitor for controlling power of the light emitting device by changing values of a drive signal to the light emitting device;

and for during a calibration mode, determining a preliminary power relationship relating values of the drive signal to powers of the light emitting device according to received monitor signal values for a plurality of drive signal values and a predetermined conversion rule for converting the received monitor signal values to corresponding powers of the light emitting device ***(column 6, lines 46-52 disclose that the monitor signal (see input to "63" in figure 4) is indicative of the laser beam intensity, thus corresponding to the recited "conversion rule"; column 11, lines 35-40 discloses that a plurality of monitor signal values are captured, resulting from a plurality of laser power levels, i.e., drive signal values).***

**Regarding claim 11,**

Call teaches the auto-calibrating optical device of claim 10, wherein to determine the preliminary power relationship relating the values of the drive signal to the powers of the light emitting device, the microprocessor determines an offset value being a maximum value of the drive signal where the light emitting device does not emit light according to the received monitor signal values ***(step "218" in Figure 9);***

and converts the received monitor signal values corresponding to drive signal values being higher than the offset value to power values according to the predetermined conversion rule to thereby generate the preliminary power relationship

***(steps "224"-"226" in Figure 9 wherein a plurality of laser generated emissions are analyzed (226) for the purpose of identifying the optimal power level).***

**Regarding claim 12,**

Call teaches the auto-calibrating optical device of claim 11, wherein to determine the preliminary power relationship relating the values of the drive signal to the powers of the light emitting device, the microprocessor further controls the power of the light emitting device by utilizing a first drive signal value and a second drive signal value (***column 11, lines 35-37)***;

extrapolates monitor signal values of a line formed between a first received value of the monitor signal corresponding to the first point, and a second received value of the monitor signal corresponding to the second drive signal value ***(step "218" in figure 9)***;

determines the offset value of the drive signal to be a crossing value of the drive signal corresponding to where the extrapolated monitor signal values of the line cross a predetermined value of the monitor signal when the light emitting device is not emitting any light ***(also in step "218" in figure ; and see column 11, lines 37-46);***

and converts the extrapolated monitor signal values of the line corresponding to drive signal values being higher than the offset value to power values according to the predetermined conversion rule to thereby generate the preliminary power relationship ***(steps "219" through "227" in figure 9).***

**Regarding claim 13,**

Call teaches the auto-calibrating optical device of claim 10, wherein the microprocessor is for further generating a final power relationship by performing a power relationship correction operation on an optical medium of the optical device;

the power relationship correction operation comprising the microprocessor writing test data to the optical medium of the optical device using a particular drive signal value for a predetermined power value according to the preliminary power relationship ***("step "230" in figure 10);***

reading a read signal corresponding to the test data from the optical medium ***(step "231" in figure 10);***

and analyzing the read signal to determine if the test data was written to the optical medium at the particular power and correspondingly adjusting the preliminary power relationship such that the test data is written to the optical medium at the predetermined power to thereby generate the final power relationship ***(steps "232" through "234" in figure 10).***

**Regarding claim 14,**

Call teaches the auto-calibrating optical device of claim 11, wherein the power relationship correction operation involves the microprocessor performing an optimum power control (OPC) on the optical medium of the optical device.

**Regarding claim 16,**

Call teaches the device of claim 11, further comprising a non-volatile memory ***("83" and "84" in figure 4)*** for storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used by the microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device ***(column 7, lines 2-4).***

6. **Claims 1, 4, 5, 7-10, 13 and 17-18** are rejected under 35 U.S.C. 102(b) as being anticipated by **KENJO (US 5,029,155).**

**Regarding claims 1 and 10,**

Kenjo teaches a method of calibration and an automatic light emitting device having a light emitting device ***("4" in figure 2)*** and a photo monitor ***("5" in figure 2),*** comprising:

controlling power of the light emitting device by changing values of a drive signal to the light emitting device ***("25" in figure 2)***;

detecting light emitted by the light emitting device and generating a monitor signal having a value corresponding to the light emitted by the light emitting device utilizing the photo monitor ***(column 4, lines 12-16);***

and determining a preliminary power relationship relating values of the drive signal to powers of the light emitting device according to received monitor signal values

***(column 4, lines 16-24)*** for a plurality of drive signal values ***(Figure 4; also see column 5, lines 30-39)*** and a predetermined conversion rule for converting the received monitor signal values to corresponding powers of the light emitting device ***(column 4, lines 12-16).***

**Regarding claims 4 and 13,**

Kenjo teaches the method and device of claims 1 and 10, respectively, further comprising generating a final power relationship by performing a power relationship correction operation on an optical medium of the optical device; the power relationship correction operation comprising the following steps: writing test data to the optical medium of the optical device using a particular drive signal value for a predetermined power value according to the preliminary power relationship; reading a read signal corresponding to the test data from the optical medium; and analyzing the read signal to determine if the test data was written to the optical medium at the particular power and correspondingly adjusting the preliminary power relationship such that the test data is written to the optical medium at the predetermined power to thereby generate the final power relationship ***(column 5, lines 21-29).***

**Regarding claim 5,**

Kenjo teaches the method of claim 4, wherein the power relationship correction operation involves performing an optimum power control (OPC) on the optical medium of the optical device.

**Regarding claim 7,**

Kenjo teaches the method of auto-calibration recited in claim 4, further comprising a non-volatile memory ***("28" in figure 1)*** for storing the final power relationship determined by the microprocessor during the calibration mode, the final power relationship being used by the microprocessor during normal operations for controlling values of the drive signal according to desired powers of the light emitting device ***(column 5, lines 32-39).***

**Regarding claims 8 and 17,**

Kenjo teaches the method and device of claims 1 and 10, respectively, wherein the optical device is an optical disc drive or a optical disc recorder, the photo monitor is a front monitor diode (FMD), and the light emitting device is a laser diode ***(column 3, lines 23-25 teaches that the photo detector "5" is mounted in a housing together with the laser diode "4", see figure 2)***.

**Regarding claims 9 and 18,**

Kenjo teaches the method and device of claims 8 and 17, respectively, being capable of calibrating the write power or the read power of the laser diode.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne H. Pendleton whose telephone number is 571-272-7497. The examiner can normally be reached on 10:30-7:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

D. Pendleton

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER